In [1]:
```python
import pandas as pd
import numpy as np
```

In [3]:
```python
df=pd.read_csv("PlayTennis - PlayTennis.csv")
df
```

Out[3]:

	outlook	temp	humidity	windy	play
0	Rainy	hot	high	False	no
1	Rainy	hot	high	True	no
2	overcast	hot	high	False	yes
3	Sunny	mild	high	False	yes
4	Sunny	cool	normal	False	yes
5	Sunny	cool	normal	True	no
6	overcast	cool	normal	True	yes
7	Rainy	mild	high	False	no
8	Rainy	cool	normal	False	yes
9	Sunny	mild	normal	False	yes
10	Rainy	mild	normal	True	yes
11	overcast	mild	high	True	yes
12	overcast	hot	normal	False	yes
13	Sunny	mild	high	True	no

In [4]:
```python
from sklearn.preprocessing import LabelEncoder
```

In [5]:
```python
le = LabelEncoder()
df = df.apply(le.fit_transform)
```

In [6]:
```python
x=df[["outlook","temp","humidity","windy"]]
```

In [8]:
```python
y=df.iloc[:,-1].values.reshape(-1,1)
y
```

Out[8]:
```
array([[0],
       [0],
       [1],
       [1],
       [1],
       [0],
       [1],
       [0],
       [1],
       [1],
       [1],
       [1],
       [1],
       [0]])
```

In [10]:
```python
from sklearn.tree import DecisionTreeClassifier
```

In [11]:
```python
df1=DecisionTreeClassifier(criterion='entropy')
df1.fit(x,y)
```

Out[11]:
```
DecisionTreeClassifier(criterion='entropy')
```
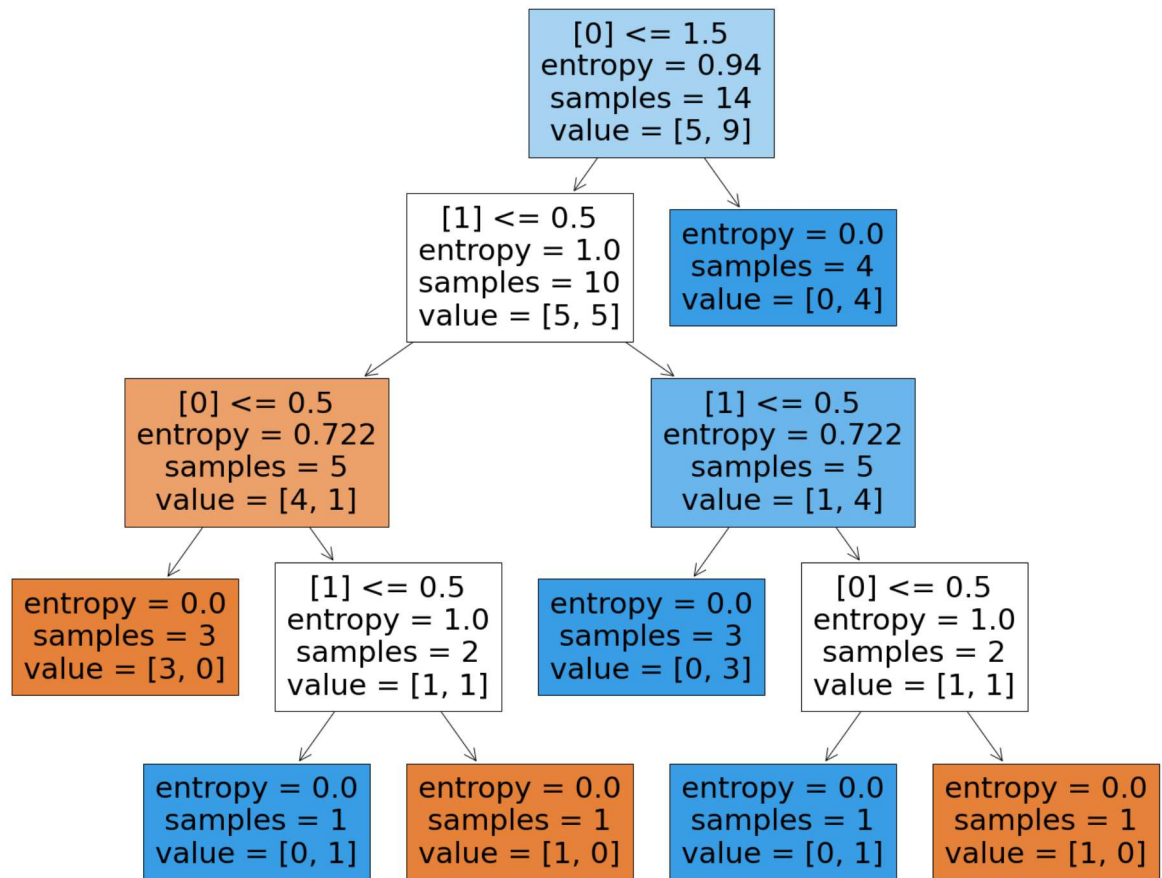
In [12]:
```python
from sklearn import tree
```

In [13]: `tree.plot_tree(df1)`

Out[13]: [Text(0.5555555555555556, 0.9, 'X[0] <= 1.5\nentropy = 0.94\nsamples = 14\nva
lue = [5, 9]'),
 Text(0.4444444444444444, 0.7, 'X[2] <= 0.5\nentropy = 1.0\nsamples = 10\nval
ue = [5, 5]'),
 Text(0.2222222222222222, 0.5, 'X[0] <= 0.5\nentropy = 0.722\nsamples = 5\nva
lue = [4, 1]'),
 Text(0.1111111111111111, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [3, 0]'),
 Text(0.3333333333333333, 0.3, 'X[3] <= 0.5\nentropy = 1.0\nsamples = 2\nvalu
e = [1, 1]'),
 Text(0.2222222222222222, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
 Text(0.4444444444444444, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
 Text(0.6666666666666666, 0.5, 'X[3] <= 0.5\nentropy = 0.722\nsamples = 5\nva
lue = [1, 4]'),
 Text(0.5555555555555556, 0.3, 'entropy = 0.0\nsamples = 3\nvalue = [0, 3]'),
 Text(0.7777777777777778, 0.3, 'X[0] <= 0.5\nentropy = 1.0\nsamples = 2\nvalu
e = [1, 1]'),
 Text(0.6666666666666666, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [0, 1]'),
 Text(0.8888888888888888, 0.1, 'entropy = 0.0\nsamples = 1\nvalue = [1, 0]'),
 Text(0.6666666666666666, 0.7, 'entropy = 0.0\nsamples = 4\nvalue = [0, 4]')]
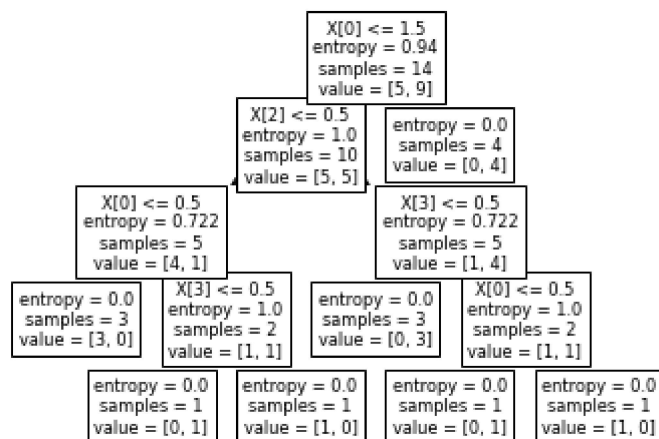
In [16]:
```python
from matplotlib import pyplot as plt
fig=plt.figure(figsize=(25,20))
_=tree.plot_tree(df1,filled=True,feature_names=y)
```

[0] <= 1.5
entropy = 0.94
samples = 14
value = [5, 9]

[1] <= 0.5
entropy = 1.0
samples = 10
value = [5, 5]

entropy = 0.0
samples = 4
value = [0, 4]

[0] <= 0.5
entropy = 0.722
samples = 5
value = [4, 1]

[1] <= 0.5
entropy = 0.722
samples = 5
value = [1, 4]

entropy = 0.0
samples = 3
value = [3, 0]

[1] <= 0.5
entropy = 1.0
samples = 2
value = [1, 1]

entropy = 0.0
samples = 3
value = [0, 3]

[0] <= 0.5
entropy = 1.0
samples = 2
value = [1, 1]

entropy = 0.0
samples = 1
value = [0, 1]

entropy = 0.0
samples = 1
value = [1, 0]

entropy = 0.0
samples = 1
value = [0, 1]

entropy = 0.0
samples = 1
value = [1, 0]

In [ ]: